

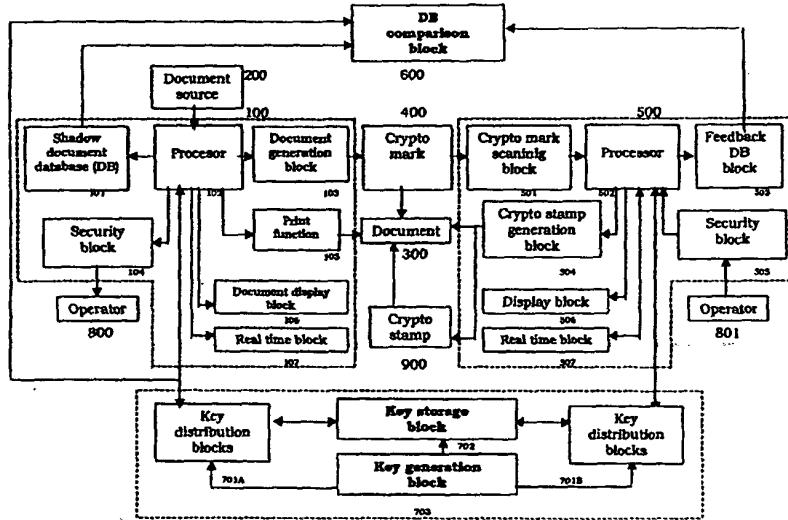
PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G07D 7/00		A1	(11) International Publication Number: WO 99/27503 (43) International Publication Date: 3 June 1999 (03.06.99)
(21) International Application Number: PCT/SK98/00018		(81) Designated States: AL, AM, AT, AU, AZ, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HR, HU, ID, IL, JP, KG, KR, KZ, LT, LV, MD, MK, MN, MX, NO, NZ, PL, PT, RO, RU, SE, SI, TM, TR, UA, US, UZ, VN, YU, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 9 November 1998 (09.11.98)			
(30) Priority Data: PV 1584-97 24 November 1997 (24.11.97) SK			
(71)(72) Applicant and Inventor: KOČIŠ, Ivan [SK/SK]; Kuklovská 54, 841 05 Bratislava (SK).		Published With international search report.	
(74) Agent: GUNIŠ, Jaroslav; Animus – Patent and Trademark Office, Dúbravská cesta 9, 842 34 Bratislava (SK).			
<p>(54) Title: THE SYSTEM AND METHOD OF PROTECTION AND HANDLING OF DOCUMENTS</p> <p>(57) Abstract</p> <p>The solution deals with a system for the protection of physical documents against illegal and unauthorized alteration, modification or counterfeiting, and allowing for falsification-proof confirmation of the inspection of the document, and minimizing the influence of the human factor. The system consists of at least one document generation block (300), creating from the document data source (200) with the involvement of an operator (800) and/or (801) the physical form of the document. The system also includes the crypto mark (400) carried by the document which then becomes a component part of the shadow document database (101); at least one document control block (500) which scans the crypto mark (400) carried by the document, verifies its authenticity, displays the critical part of the document and generates the crypto stamp (900). The crypto stamp is affixed either by the authorized operator (800) and/or (801) or an appropriate equipment onto the document which thus becomes a component part of the feedback document database (503); at least one keys generation and distribution block (700); at least one document database comparison block (600); and at least one document source block (200). The solution also deals with the method of protection of physical documents, which consists of cryptographic processing of the selected data at the point of the creation of the document, and transformation of the data into a form serving as a base for the generation of the crypto mark; the system includes also the generation of the crypto mark and its scanning at the point where the inspection of the document takes place and transformation into a data form followed by verification of integrity and validity of those data and approval of the document inspection; the final step consists of the generation and displaying of the crypto stamp and its affixing onto the inspected document for its further use.</p> <pre> graph TD DS[Document source 200] --> PG[Processor] DS --> SD[Shadow document database 101] PG --> DD[Document display block] PG --> RTB[Real time block] PG --> PF[Print function] DD --> D[Document 300] D --> CM[Crypto mark 400] CM --> DS CM --> CG[Crypto stamp generation block 501] CG --> DB[Display block 502] DB --> DS DB --> RTB DB --> SG[Security block 503] SG --> DS DS --> DB DS --> SD DS --> OC[Operator 800] DS --> OC2[Operator 801] SD --> OC SD --> OC2 OC --> PG OC2 --> PG PG --> PG2[Processor] PG2 --> FDB[Feedback DB block 504] FDB --> DS FDB --> SG FDB --> SG2[Processor] SG2 --> FDB SG2 --> DS SG2 --> SG3[Security block 505] SG3 --> DS SG3 --> OC SG3 --> OC2 SG3 --> SG4[Processor] SG4 --> SG5[Security block 506] SG5 --> SG4 SG5 --> SG6[Processor] SG6 --> SG5 SG6 --> SG7[Security block 507] SG7 --> SG6 SG7 --> SG8[Processor] SG8 --> SG9[Security block 508] SG9 --> SG8 SG9 --> SG10[Processor] SG10 --> SG11[Security block 509] SG11 --> SG10 SG11 --> SG12[Processor] SG12 --> SG11 SG12 --> SG13[Security block 510] SG13 --> SG12 SG13 --> SG14[Processor] SG14 --> SG15[Security block 511] SG15 --> SG14 SG15 --> SG16[Processor] SG16 --> SG15 SG16 --> SG17[Security block 512] SG17 --> SG16 SG17 --> SG18[Processor] SG18 --> SG19[Security block 513] SG19 --> SG18 SG19 --> SG20[Processor] SG20 --> SG21[Security block 514] SG21 --> SG20 SG21 --> SG22[Processor] SG22 --> SG21 SG22 --> SG23[Security block 515] SG23 --> SG22 SG23 --> SG24[Processor] SG24 --> SG25[Security block 516] SG25 --> SG24 SG25 --> SG26[Processor] SG26 --> SG25 SG26 --> SG27[Security block 517] SG27 --> SG26 SG27 --> SG28[Processor] SG28 --> SG29[Security block 518] SG29 --> SG28 SG29 --> SG30[Processor] SG30 --> SG31[Security block 519] SG31 --> SG30 SG31 --> SG32[Processor] SG32 --> SG31 SG32 --> SG33[Security block 520] SG33 --> SG32 SG33 --> SG34[Processor] SG34 --> SG35[Security block 521] SG35 --> SG34 SG35 --> SG36[Processor] SG36 --> SG35 SG36 --> SG37[Security block 522] SG37 --> SG36 SG37 --> SG38[Processor] SG38 --> SG39[Security block 523] SG39 --> SG38 SG39 --> SG40[Processor] SG40 --> SG41[Security block 524] SG41 --> SG40 SG41 --> SG42[Processor] SG42 --> SG41 SG42 --> SG43[Security block 525] SG43 --> SG42 SG43 --> SG44[Processor] SG44 --> SG45[Security block 526] SG45 --> SG44 SG45 --> SG46[Processor] SG46 --> SG45 SG46 --> SG47[Security block 527] SG47 --> SG46 SG47 --> SG48[Processor] SG48 --> SG49[Security block 528] SG49 --> SG48 SG49 --> SG50[Processor] SG50 --> SG51[Security block 529] SG51 --> SG50 SG51 --> SG52[Processor] SG52 --> SG53[Security block 530] SG53 --> SG52 SG53 --> SG54[Processor] SG54 --> SG55[Security block 531] SG55 --> SG54 SG55 --> SG56[Processor] SG56 --> SG57[Security block 532] SG57 --> SG56 SG57 --> SG58[Processor] SG58 --> SG59[Security block 533] SG59 --> SG58 SG59 --> SG60[Processor] SG60 --> SG61[Security block 534] SG61 --> SG60 SG61 --> SG62[Processor] SG62 --> SG63[Security block 535] SG63 --> SG62 SG63 --> SG64[Processor] SG64 --> SG65[Security block 536] SG65 --> SG64 SG65 --> SG66[Processor] SG66 --> SG67[Security block 537] SG67 --> SG66 SG67 --> SG68[Processor] SG68 --> SG69[Security block 538] SG69 --> SG68 SG69 --> SG70[Processor] SG70 --> SG71[Security block 539] SG71 --> SG70 SG71 --> SG72[Processor] SG72 --> SG73[Security block 540] SG73 --> SG72 SG73 --> SG74[Processor] SG74 --> SG75[Security block 541] SG75 --> SG74 SG75 --> SG76[Processor] SG76 --> SG77[Security block 542] SG77 --> SG76 SG77 --> SG78[Processor] SG78 --> SG79[Security block 543] SG79 --> SG78 SG79 --> SG80[Processor] SG80 --> SG81[Security block 544] SG81 --> SG80 SG81 --> SG82[Processor] SG82 --> SG83[Security block 545] SG83 --> SG82 SG83 --> SG84[Processor] SG84 --> SG85[Security block 546] SG85 --> SG84 SG85 --> SG86[Processor] SG86 --> SG87[Security block 547] SG87 --> SG86 SG87 --> SG88[Processor] SG88 --> SG89[Security block 548] SG89 --> SG88 SG89 --> SG90[Processor] SG90 --> SG91[Security block 549] SG91 --> SG90 SG91 --> SG92[Processor] SG92 --> SG93[Security block 550] SG93 --> SG92 SG93 --> SG94[Processor] SG94 --> SG95[Security block 551] SG95 --> SG94 SG95 --> SG96[Processor] SG96 --> SG97[Security block 552] SG97 --> SG96 SG97 --> SG98[Processor] SG98 --> SG99[Security block 553] SG99 --> SG98 SG99 --> SG100[Processor] SG100 --> SG101[Security block 554] SG101 --> SG100 SG101 --> SG102[Processor] SG102 --> SG103[Security block 555] SG103 --> SG102 SG103 --> SG104[Processor] SG104 --> SG105[Security block 556] SG105 --> SG104 SG105 --> SG106[Processor] SG106 --> SG107[Security block 557] SG107 --> SG106 SG107 --> SG108[Processor] SG108 --> SG109[Security block 558] SG109 --> SG108 SG109 --> SG110[Processor] SG110 --> SG111[Security block 559] SG111 --> SG110 SG111 --> SG112[Processor] SG112 --> SG113[Security block 560] SG113 --> SG112 SG113 --> SG114[Processor] SG114 --> SG115[Security block 561] SG115 --> SG114 SG115 --> SG116[Processor] SG116 --> SG117[Security block 562] SG117 --> SG116 SG117 --> SG118[Processor] SG118 --> SG119[Security block 563] SG119 --> SG118 SG119 --> SG120[Processor] SG120 --> SG121[Security block 564] SG121 --> SG120 SG121 --> SG122[Processor] SG122 --> SG123[Security block 565] SG123 --> SG122 SG123 --> SG124[Processor] SG124 --> SG125[Security block 566] SG125 --> SG124 SG125 --> SG126[Processor] SG126 --> SG127[Security block 567] SG127 --> SG126 SG127 --> SG128[Processor] SG128 --> SG129[Security block 568] SG129 --> SG128 SG129 --> SG130[Processor] SG130 --> SG131[Security block 569] SG131 --> SG130 SG131 --> SG132[Processor] SG132 --> SG133[Security block 570] SG133 --> SG132 SG133 --> SG134[Processor] SG134 --> SG135[Security block 571] SG135 --> SG134 SG135 --> SG136[Processor] SG136 --> SG137[Security block 572] SG137 --> SG136 SG137 --> SG138[Processor] SG138 --> SG139[Security block 573] SG139 --> SG138 SG139 --> SG140[Processor] SG140 --> SG141[Security block 574] SG141 --> SG140 SG141 --> SG142[Processor] SG142 --> SG143[Security block 575] SG143 --> SG142 SG143 --> SG144[Processor] SG144 --> SG145[Security block 576] SG145 --> SG144 SG145 --> SG146[Processor] SG146 --> SG147[Security block 577] SG147 --> SG146 SG147 --> SG148[Processor] SG148 --> SG149[Security block 578] SG149 --> SG148 SG149 --> SG150[Processor] SG150 --> SG151[Security block 579] SG151 --> SG150 SG151 --> SG152[Processor] SG152 --> SG153[Security block 580] SG153 --> SG152 SG153 --> SG154[Processor] SG154 --> SG155[Security block 581] SG155 --> SG154 SG155 --> SG156[Processor] SG156 --> SG157[Security block 582] SG157 --> SG156 SG157 --> SG158[Processor] SG158 --> SG159[Security block 583] SG159 --> SG158 SG159 --> SG160[Processor] SG160 --> SG161[Security block 584] SG161 --> SG160 SG161 --> SG162[Processor] SG162 --> SG163[Security block 585] SG163 --> SG162 SG163 --> SG164[Processor] SG164 --> SG165[Security block 586] SG165 --> SG164 SG165 --> SG166[Processor] SG166 --> SG167[Security block 587] SG167 --> SG166 SG167 --> SG168[Processor] SG168 --> SG169[Security block 588] SG169 --> SG168 SG169 --> SG170[Processor] SG170 --> SG171[Security block 589] SG171 --> SG170 SG171 --> SG172[Processor] SG172 --> SG173[Security block 590] SG173 --> SG172 SG173 --> SG174[Processor] SG174 --> SG175[Security block 591] SG175 --> SG174 SG175 --> SG176[Processor] SG176 --> SG177[Security block 592] SG177 --> SG176 SG177 --> SG178[Processor] SG178 --> SG179[Security block 593] SG179 --> SG178 SG179 --> SG180[Processor] SG180 --> SG181[Security block 594] SG181 --> SG180 SG181 --> SG182[Processor] SG182 --> SG183[Security block 595] SG183 --> SG182 SG183 --> SG184[Processor] SG184 --> SG185[Security block 596] SG185 --> SG184 SG185 --> SG186[Processor] SG186 --> SG187[Security block 597] SG187 --> SG186 SG187 --> SG188[Processor] SG188 --> SG189[Security block 598] SG189 --> SG188 SG189 --> SG190[Processor] SG190 --> SG191[Security block 599] SG191 --> SG190 SG191 --> SG192[Processor] SG192 --> SG193[Security block 600] SG193 --> SG192 SG193 --> SG194[Processor] SG194 --> SG195[Security block 601] SG195 --> SG194 SG195 --> SG196[Processor] SG196 --> SG197[Security block 602] SG197 --> SG196 SG197 --> SG198[Processor] SG198 --> SG199[Security block 603] SG199 --> SG198 SG199 --> SG200[Processor] SG200 --> SG201[Security block 604] SG201 --> SG200 SG201 --> SG202[Processor] SG202 --> SG203[Security block 605] SG203 --> SG202 SG203 --> SG204[Processor] SG204 --> SG205[Security block 606] SG205 --> SG204 SG205 --> SG206[Processor] SG206 --> SG207[Security block 607] SG207 --> SG206 SG207 --> SG208[Processor] SG208 --> SG209[Security block 608] SG209 --> SG208 SG209 --> SG210[Processor] SG210 --> SG211[Security block 609] SG211 --> SG210 SG211 --> SG212[Processor] SG212 --> SG213[Security block 610] SG213 --> SG212 SG213 --> SG214[Processor] SG214 --> SG215[Security block 611] SG215 --> SG214 SG215 --> SG216[Processor] SG216 --> SG217[Security block 612] SG217 --> SG216 SG217 --> SG218[Processor] SG218 --> SG219[Security block 613] SG219 --> SG218 SG219 --> SG220[Processor] SG220 --> SG221[Security block 614] SG221 --> SG220 SG221 --> SG222[Processor] SG222 --> SG223[Security block 615] SG223 --> SG222 SG223 --> SG224[Processor] SG224 --> SG225[Security block 616] SG225 --> SG224 SG225 --> SG226[Processor] SG226 --> SG227[Security block 617] SG227 --> SG226 SG227 --> SG228[Processor] SG228 --> SG229[Security block 618] SG229 --> SG228 SG229 --> SG230[Processor] SG230 --> SG231[Security block 619] SG231 --> SG230 SG231 --> SG232[Processor] SG232 --> SG233[Security block 620] SG233 --> SG232 SG233 --> SG234[Processor] SG234 --> SG235[Security block 621] SG235 --> SG234 SG235 --> SG236[Processor] SG236 --> SG237[Security block 622] SG237 --> SG236 SG237 --> SG238[Processor] SG238 --> SG239[Security block 623] SG239 --> SG238 SG239 --> SG240[Processor] SG240 --> SG241[Security block 624] SG241 --> SG240 SG241 --> SG242[Processor] SG242 --> SG243[Security block 625] SG243 --> SG242 SG243 --> SG244[Processor] SG244 --> SG245[Security block 626] SG245 --> SG244 SG245 --> SG246[Processor] SG246 --> SG247[Security block 627] SG247 --> SG246 SG247 --> SG248[Processor] SG248 --> SG249[Security block 628] SG249 --> SG248 SG249 --> SG250[Processor] SG250 --> SG251[Security block 629] SG251 --> SG250 SG251 --> SG252[Processor] SG252 --> SG253[Security block 630] SG253 --> SG252 SG253 --> SG254[Processor] SG254 --> SG255[Security block 631] SG255 --> SG254 SG255 --> SG256[Processor] SG256 --> SG257[Security block 632] SG257 --> SG256 SG257 --> SG258[Processor] SG258 --> SG259[Security block 633] SG259 --> SG258 SG259 --> SG260[Processor] SG260 --> SG261[Security block 634] SG261 --> SG260 SG261 --> SG262[Processor] SG262 --> SG263[Security block 635] SG263 --> SG262 SG263 --> SG264[Processor] SG264 --> SG265[Security block 636] SG265 --> SG264 SG265 --> SG266[Processor] SG266 --> SG267[Security block 637] SG267 --> SG266 SG267 --> SG268[Processor] SG268 --> SG269[Security block 638] SG269 --> SG268 SG269 --> SG270[Processor] SG270 --> SG271[Security block 639] SG271 --> SG270 SG271 --> SG272[Processor] SG272 --> SG273[Security block 640] SG273 --> SG272 SG273 --> SG274[Processor] SG274 --> SG275[Security block 641] SG275 --> SG274 SG275 --> SG276[Processor] SG276 --> SG277[Security block 642] SG277 --> SG276 SG277 --> SG278[Processor] SG278 --> SG279[Security block 643] SG279 --> SG278 SG279 --> SG280[Processor] SG280 --> SG281[Security block 644] SG281 --> SG280 SG281 --> SG282[Processor] SG282 --> SG283[Security block 645] SG283 --> SG282 SG283 --> SG284[Processor] SG284 --> SG285[Security block 646] SG285 --> SG284 SG285 --> SG286[Processor] SG286 --> SG287[Security block 647] SG287 --> SG286 SG287 --> SG288[Processor] SG288 --> SG289[Security block 648] SG289 --> SG288 SG289 --> SG290[Processor] SG290 --> SG291[Security block 649] SG291 --> SG290 SG291 --> SG292[Processor] SG292 --> SG293[Security block 650] SG293 --> SG292 SG293 --> SG294[Processor] SG294 --> SG295[Security block 651] SG295 --> SG294 SG295 --> SG296[Processor] SG296 --> SG297[Security block 652] SG297 --> SG296 SG297 --> SG298[Processor] SG298 --> SG299[Security block 653] SG299 --> SG298 SG299 --> SG300[Processor] SG300 --> SG301[Security block 654] SG301 --> SG300 SG301 --> SG302[Processor] SG302 --> SG303[Security block 655] SG303 --> SG302 SG303 --> SG304[Processor] SG304 --> SG305[Security block 656] SG305 --> SG304 SG305 --> SG306[Processor] SG306 --> SG307[Security block 657] SG307 --> SG306 SG307 --> SG308[Processor] SG308 --> SG309[Security block 658] SG309 --> SG308 SG309 --> SG310[Processor] SG310 --> SG311[Security block 659] SG311 --> SG310 SG311 --> SG312[Processor] SG312 --> SG313[Security block 660] SG313 --> SG312 SG313 --> SG314[Processor] SG314 --> SG315[Security block 661] SG315 --> SG314 SG315 --> SG316[Processor] SG316 --> SG317[Security block 662] SG317 --> SG316 SG317 --> SG318[Processor] SG318 --> SG319[Security block 663] SG319 --> SG318 SG319 --> SG320[Processor] SG320 --> SG321[Security block 664] SG321 --> SG320 SG321 --> SG322[Processor] SG322 --> SG323[Security block 665] SG323 --> SG322 SG323 --> SG324[Processor] SG324 --> SG325[Security block 666] SG325 --> SG324 SG325 --> SG326[Processor] SG326 --> SG327[Security block 667] SG327 --> SG326 SG327 --> SG328[Processor] SG328 --> SG329[Security block 668] SG329 --> SG328 SG329 --> SG330[Processor] SG330 --> SG331[Security block 669] SG331 --> SG330 SG331 --> SG332[Processor] SG332 --> SG333[Security block 670] SG333 --> SG332 SG333 --> SG334[Processor] SG334 --> SG335[Security block 671] SG335 --> SG334 SG335 --> SG336[Processor] SG336 --> SG337[Security block 672] SG337 --> SG336 SG337 --> SG338[Processor] SG338 --> SG339[Security block 673] SG339 --> SG338 SG339 --> SG340[Processor] SG340 --> SG341[Security block 674] SG341 --> SG340 SG341 --> SG342[Processor] SG342 --> SG343[Security block 675] SG343 --> SG342 SG343 --> SG344[Processor] SG344 --> SG345[Security block 676] SG345 --> SG344 SG345 --> SG346[Processor] SG346 --> SG347[Security block 677] SG347 --> SG346 SG347 --> SG348[Processor] SG348 --> SG349[Security block 678] SG349 --> SG348 SG349 --> SG350[Processor] SG350 --> SG351[Security block 679] SG351 --> SG350 SG351 --> SG352[Processor] SG352 --> SG353[Security block 680] SG353 --> SG352 SG353 --> SG354[Processor] SG354 --> SG355[Security block 681] SG355 --> SG354 SG355 --> SG356[Processor] SG356 --> SG357[Security block 682] SG357 --> SG356 SG357 --> SG358[Processor] SG358 --> SG359[Security block 683] SG359 --> SG358 SG359 --> SG360[Processor] SG360 --> SG361[Security block 684] SG361 --> SG360 SG361 --> SG362[Processor] SG362 --> SG363[Security block 685] SG363 --> SG362 SG363 --> SG364[Processor] SG364 --> SG365[Security block 686] SG365 --> SG364 SG365 --> SG366[Processor] SG366 --> SG367[Security block 687] SG367 --> SG366 SG367 --> SG368[Processor] SG368 --> SG369[Security block 688] SG369 --> SG368 SG369 --> SG370[Processor] SG370 --> SG371[Security block 689] SG371 --> SG370 SG371 --> SG372[Processor] SG372 --> SG373[Security block 690] SG373 --> SG372 SG373 --> SG374[Processor] SG374 --> SG375[Security block 691] SG375 --> SG374 SG375 --> SG376[Processor] SG376 --> SG377[Security block 692] SG377 --> SG376 SG377 --> SG378[Processor] SG378 --> SG379[Security block 693] SG379 --> SG378 SG379 --> SG380[Processor] SG380 --> SG381[Security block 694] SG381 --> SG380 SG381 --> SG382[Processor] SG382 --> SG383[Security block 695] SG383 --> SG382 SG383 --> SG384[Processor] SG384 --> SG385[Security block 696] SG385 --> SG384 SG385 --> SG386[Processor] SG386 --> SG387[Security block 697] SG387 --> SG386 SG387 --> SG388[Processor] SG388 --> SG389[Security block 698] SG389 --> SG388 SG389 --> SG390[Processor] SG390 --> SG391[Security block 699] SG391 --> SG390 SG391 --> SG392[Processor] SG392 --> SG393[Security block 700] SG393 --> SG392 SG393 --> SG394[Processor] SG394 --> SG395[Security block 701] SG395 --> SG394 SG395 --> SG396[Processor] SG396 --> SG397[Security block 702] SG397 --> SG396 SG397 --> SG398[Processor] SG398 --> SG399[Security block 703] SG399 --> SG398 SG399 --> SG400[Processor] SG400 --> SG401[Security block 704] SG401 --> SG400 SG401 --> SG402[Processor] SG402 --> SG403[Security block 705] SG403 --> SG402 SG403 --> SG404[Processor] SG404 --> SG405[Security block 706] SG405 --> SG404 SG405 --> SG406[Processor] SG406 --> SG407[Security block 707] SG407 --> SG406 SG407 --> SG408[Processor] SG408 --> SG409[Security block 708] SG409 --> SG408 SG409 --> SG410[Processor] SG410 --> SG411[Security block 709] SG411 --> SG410 SG411 --> SG412[Processor] SG412 --> SG413[Security block 710] SG413 --> SG412 SG413 --> SG414[Processor] SG414 --> SG415[Security block 711] SG415 --> SG414 SG415 --> SG416[Processor] SG416 --> SG417[Security block 712] SG417 --> SG416 SG417 --> SG418[Processor] SG418 --> SG419[Security block 713] SG419 --> SG418 SG419 --> SG420[Processor] SG420 --> SG421[Security block 714] SG421 --> SG420 SG421 --> SG422[Processor] SG422 --> SG423[Security block 715] SG423 --> SG422 SG423 --> SG424[Processor] SG424 --> SG425[Security block 716] SG425 --> SG424 SG425 --> SG426[Processor] SG426 --> SG427[Security block 717] SG427 --> SG426 SG427 --> SG428[Processor] SG428 --> SG429[Security block 718] SG429 --> SG428 SG429 --> SG430[Processor] SG430 --> SG431[Security block 719] SG431 --> SG430 SG431 --> SG432[Processor] SG432 --> SG433[Security block 720] SG433 --> SG432 SG433 --> SG434[Processor] SG434 --> SG435[Security block 721] SG435 --> SG434 SG435 --> SG436[Processor] SG436 --> SG437[Security block 722] SG437 --> SG436 SG4</pre>			



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Larvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon	KR	Republic of Korea	PL	Poland		
CN	China	KZ	Kazakhstan	PT	Portugal		
CU	Cuba	LC	Saint Lucia	RO	Romania		
CZ	Czech Republic	LI	Liechtenstein	RU	Russian Federation		
DE	Germany	LK	Sri Lanka	SD	Sudan		
DK	Denmark	LR	Liberia	SE	Sweden		
EE	Estonia			SG	Singapore		

The system and method of protection and handling of documentsTechnical Field

The invention relates to the system and method of protection of integrity of printed documents, and to prevention of their unauthorized modification, counterfeiting and performing of related activities, as well as to minimizing of the influence of the human factor.

Background Art

The literature describes several ways of the protection of documents, all of which are aimed at the protection and encryption of documents and the prevention of their unauthorized modification and counterfeiting. Considering the system and mode of the protection, there are three basic concepts.

The first of them deals with the protection of a document as such (i.e. checks, various types of identification documents). This group of documents carries protective marks including e.g. a protective type of paper they are made from, ink and fibers sensitive to ultraviolet light, pantographs, artificial water-marks, embossing, etc. Numerous reports deal with the protection of checks and other documents, e.g. deeds of donation, motor vehicle identification documents and certificates of titles, airline tickets, school diplomas, various admission tickets, securities, bonds, certified copies of school certificates and various types of legal documents, etc. The system involves e.g. protective inks either indicating that the document has been altered or enabling the verification of the original copy (deletable inks, fluorescent inks, infra-red inks, inks penetrating into the depth of the paper the document is printed on, thermochromic inks, chemically reactive types of paper, protective fibers, water-marks, etc. (Copyright 1996 FORM magazine, 433 - E. Monroe Avenue, Alexandria, VA 22301). Apart from water-marks and fluorescent ink, the systems very often utilize also the photomicrograph. This group of "hidden marks" represents an effective deterring means offering an efficient protection against copying and scanning of documents. In order to achieve maximum protecting effect, the documents belonging into this group should include several marks (e.g. some types of recently used checks carry up to 16 anti-criminal marks). Other often used modes of protection utilize various printing techniques such as multicolor prismatic printing, holographic printing, foil embossing, etc.

The second concept is based on the protection of the content of the documents (i.e. of the data incorporated into the given document). EP 0084441 A2 830727, for example, deals with the mode and technology used for the protection of computer software against unauthorized use. This class of protection methods is the most numerous one and more examples shall be given in the text below.

The protection of the "uniqueness" of the document, i.e. of the document the content and base of which cannot be duplicated, represents the most elaborate way of protection, and methods representing the combination of the preceding two concepts are available at the time being.

The area of the protection of documents and of their handling involves solutions ensuring certain partial aspects of the protection, such as:

Protection of the base of the document through different printing, graphic and paper production technology-related elements. Other systems may involve chemical, optical, electromagnetic and similar protective elements representing an effective barrier to the illegal

- 2 -

production of the protected documents (bills, checks, bonds, securities, admission tickets, etc.).

Protection against duplication of documents, e.g. through creation of a special graphic mark(s) as an integral part of the document. Specially equipped copiers (available at specialized workplaces) shall recognize such mark(s) and shall thus refuse to copy the document (US Patent No. 5502575).

Protection supplemented with an active element making it possible to transport on the document a protective mark able to activate the appropriate equipment (copier, fax) which in turn will carry out the instruction (US Patent No. 5231663).

Elements carried either in the text of the document or in the document as such, providing for the automated handling of printed documents through marks representing either numbers or other types of information required for the appropriate classification of the document (name of the author, title, serial number, date, etc.). These marks may be in the form of bar codes or information included directly into the base of the document (US Patents Nos. 5490217 and 5486686, respectively).

Yet another group of relevant technologies is represented by techniques used for the inclusion of certain protective information into a document printed on paper:

Methods making it possible to print through various graphic combinations on certain places, designated for that purpose within the document, scannable data either in the form of double-value surface information (US Patent No. 5337362) or as more complex and intricate two-dimensional (2D) bar codes (e.g. US Patent No. 5243655), or by sophisticated optical cryptographic methods (US Patent No. 5488664) belonging into the group of the so called 'water-marks' (analogous to classical water-marks). Other methods include rather complex encrypting techniques (data embedding) and advanced methods based on hidden information included directly into the base of the document (watermarking) which are not visible and/or legible to the naked eye (e.g. US Patent No. 5629770). However, information included into the document in this way is rather limited (serial number of the document, copyright-related data, originator of the document [person or software], etc.).

The third group is represented by technologies protecting either a certain form of the contents of the document - e.g. its scanned/printed form (including fax) - or a part of a document which is in data form, with the aim to authenticate both the document and its contents. However, the protective mark does not allow for the determination of the data form of the document or of its part. This type of protection is represented by various authentication methods based on signature, and is used in the case of electronic form of documents (e.g. US Patents Nos. 5530755, 5255106, 5388158, 5157726).

The authentication of the document (of its scanned graphic version) will be carried out at the document inspection/use point, verifying thus the integrity/intactness of the content of the document. However, the document itself - in the data form - remains inactive.

A specific category of technologies is represented by techniques protecting through partially cryptographic methods the content of a document in its printed bitmap form. After encryption (also scrambling), a signature will be created and printed at the sending side. At the receiving side, the document will be decrypted (descrambled) and the correctness/authenticity of the signature will be checked. This category allows for direct protection of the contents of the document, regardless of its original data form (e.g. US Patents Nos. 5321749, 5491536).

However, the available literature does not describe any solution utilizing cryptographic tools for the creation of a broad system that would provide comprehensive protection of the document and, at the same time, of the activities associated with its handling, and that would be based on protected feed-back information from the critical

points of the movement (and/or functions) of the document. However, such a solution represents the subject of the present invention.

Disclosure of the Invention

The method and the system of the protection of printed documents and operations related to their use are based on the generation of falsification-proof and non-alterable ways of information transfer within the variable environment of the system as a whole. Within this environment, the information which is in an electronic form is being transformed into a printed document (hard copy). Another important aspects of this invention are the exclusion of the human factor from all critical operations, and the introduction of an effective and falsification-proof feedback from the critical operations themselves as well as from the points where these critical operations are being effected (places of the creation and inspection of the document).

The subject of the invention is a system designated for the protection of physical documents against illegal and unauthorized modification or counterfeiting, and allowing for falsification-proof confirmation of the inspection of the document and minimizing of the influence of the human factor. The system consists of:

- at least one document generation block, creating from the data source and with the involvement of an authorized operator the physical form of the document, a crypto-mark carried by the document, and a shadow document database;
- at least one document inspection block, scanning and verifying the authenticity of the crypto mark carried by the document, displaying the critical parts of the document, generating the crypto stamp to be placed by an authorized operator or equipment onto the document, and creating the feedback document database;
- at least one key generation and distribution block;
- at least one document database comparison block;
- at least one document source block.

The document generation block consists of a processor, carrying out the data processing and containing the crypto keys, a document printing block, a crypto mark generation block, a safety block, a real time block, a displaying block, and a shadow document database generating block.

The document inspection block consists of a processor carrying out the data processing and containing the crypto keys, a document printing block, a crypto mark scanning block, a safety block, a real time block, displaying block, a shadow document database generating block, and a crypto stamp generation block.

The key generation and distribution block consists of a generating block, a key storage block, and a key distribution block.

The database comparison block consists of a comparison and evaluation block, a comparison conditions block, an alarm and warning generating block, and a statistical summaries block.

The subject of the invention includes also the method of protection of physical document against their illegal and unauthorized modification and counterfeiting, and allowing for falsification-proof confirmation of the inspection of the document and minimizing of the influence of the human factor. The system consists of:

- cryptographic processing of the selected data which is carried out at the place of the generation of the document and which is the source of the data required for the printing of this physical printed document, as well as transforming of the data into a form representing the basis for the generation of the crypto mark;
- generating of the crypto mark by the equipment designated for that purpose, which takes place after the transformation of the data cryptographically processed for the purpose of the crypto mark generation; the crypto mark thus generated becomes unseparated part of the physical document which thus becomes its carrier transferring the crypto mark to the place(s) of the use of the document;
- scanning of the crypto mark at the document inspection verification point and its transformation into a data form;
- the use of cryptographic methods for the verification -- based on the scanned crypto mark -- of the integrity and validity of the data;
- approval by an authorized operator of the inspection of the document and of the associated activities, carried out after the completion of the inspection;
- generation, and displaying of the crypto stamp linking unambiguously the controlled document to the place and exact time of the inspection carried out by an authorized operator;
- affixing of the crypto stamp onto the controlled document for the purpose of its further use by an authorized operator either in a manual way or with the use of an appropriate equipment.

The subject of the invention includes also the collecting at the point of the generation of the document of all document thus created, their equipment with electronic signature and dispatching either individually or in batches in the encrypted (protected) form as a shadow database into the database comparison block.

All documents that have passed the inspection step shall be gradually accumulated at the document inspection point where they shall be electronically signed and dispatched either individually or in batches in an encrypted (protected) form as a feedback database into the database comparison block.

The crypto mark thus generated, if it is in the form of an individual physical object (e.g. sticker, annex, supplement, etc.), shall be permanently attached to the document.

The crypto mark - if generated in the same way as the document - becomes unseparated part thereof printed (in the form of a bar code or a chain of OCR symbols) on the part of the surface of the carrier material (e.g. paper) designated for that purpose.

The crypto mark thus generated may be embedded either into the text of the document and/or into its graphical part (e.g. through watermarking, etc.) or into the printing background of the document.

- 5 -

The DB comparison block performs the comparison of the database operations over the contents of the shadow DB and feedback DB.

Based on the data scanned from the crypto mark and data received from the point of the inspection of the document, the crypto stamp generation block located at the document inspection point will generate a crypto stamp, by cryptographic operation.

In the step that follows, the crypto stamp will be either placed, affixed onto or coupled with the document.

The key generation block will create the encryption and decryption keys which will be distributed by the key distribution block through safe channel(s) into the document generation and document control blocks.

The operator will then perform the operation related to the verification of his/her authorization to carry out the given set of activities, performed against the document generation block through the security block.

In the next step, the operator will then perform the operation related to the verification of his/her authorization to carry out the given set of activities, performed against the document inspection block through the safety block.

Finally, the operator will perform the verification of his/her identity and authorization to carry out certain activities involving the use of the document generation and inspection blocks.

The invention provides solution for the generation of a structure involving safe transfer channels between the document generation, document inspection, key generation and distribution, document database comparison, and document source blocks and determining the relationships of those blocks with the printed document and the crypto mark attached to it, and also with the crypto stamp. The invention introduces into one of the most critical activity, i.e. into the procedure of the inspection of the document, at least two operations contributing significantly to the enhancement of both the safety of that activity and the future auditing of the document. Those two operations are the machine-mediated transfer of the contents of the document, or of its most important parts, from the crypto mark, and the transfer of the scanned information into the computer. The computer verifies the authenticity and integrity of the document and generates its original/authentic and true form. As a further step, the computer generates a crypto stamp. The crypto stamp, that is being affixed (either printed or hand-written) onto the document, serves as an undeniable proof that the operator has carried out the required control activity.

Of great importance is also the fact that the document, together with the crypto stamp affixed to it, represents a communication channel characterized by a high degree of availability.

Another important aspect of the invention is the closure of a inspection feedback between the place(s) of generation and inspection of the document, which is effected in the DB comparison block, and which represents a cryptographic and safe closure of all activities

directly associated with the cycle consisting of the generation, transport, and inspection of the document.

The security aspect of the invention is further enhanced by the activities effected within the security block which are aimed at safe determination of the authorization of a given operator to carry out activities associated with the generation/creation and inspection of the document.

Similarly, the key generation and distribution block carries out safety operations resulting in cryptographically safe generation of keys, their storage, and safe distribution to the points of their use.

Brief Description of Drawings

Figure 1 shows all of the above mentioned blocks which represent the principal components of the invention, and their mutual interconnection and/or functional relationships. Figure 2 shows the DB comparison block.

Best Mode for Carrying Out the Invention

Example 1

The system as a whole represents a safe and functional environment enabling the creation of a critical document 300. The document is generated in the document source 200 which itself is located within the document generation block 100. The crypto mark 400 may be affixed onto a document either at the time of its generation or later.

Document 300 with the crypto mark 400 affixed to it is transferred to the document inspection point that is located within the document inspection block 500. Both blocks are connected through a safe and authenticated way with an operator 800 (and/or 801).

At the inspection point, which is located at the document inspection block 500, the operator 801 verifies his/her authorization to perform the inspection operations. Having scanned the crypto mark 400 from the document 300, the document control block 500 carries out a cryptographic verification of the integrity of the document 300 and displays its electronic form. Operator 801 makes a decision regarding the conclusion of the document control and enters the corresponding command into block 500. The document control block 500 generates through a cryptological method a crypto stamp 900, which will be displayed and either manually attached or directly printed onto the document 400.

The generation of a document in the document generation block 100 is either accompanied or followed by the generation of a cryptographically protected shadow document database (DB) 101. The document is stored in the shadow DB 101 and sent in an encrypted and protected form into the DB comparison block 600.

In a similar way, upon inspecting the document 300 in the inspection block 500, the feedback DB block 503 creates a cryptographically protected database of inspected documents and the electronic form of the document is saved and sent in a protected and encrypted form into the DB comparison block 600.

The key element of the document generation block 100 is the processor 102 integrating within the document generation block 100 the (program) functions of other blocks.

The crypto mark generation block 103 which may be realized either as an independent block or as a software function within the processor block 102 generates through its cryptographic function a crypto mark that will be subsequently printed onto the document 300.

The document itself will be created either independently from the crypto mark through the print function 105 or within a single united technological step.

The document generation block contains the document display block 106 displaying for the needs of the operator 800 the information contained in an electronic or any other form in the document source 200. The operator identifies and authenticates himself/herself through the security block 104.

The real time block 107 maintains the information on the real time required by the cryptographic operations needed for the generation of the crypto mark.

Another integral part of the document inspection block 500 is the crypto mark scanning block 501 which transforms the machine-readable crypto mark into the electronic form that is subsequently sent to the processor 502. The processor 502 carries out cryptographically the integrity verification and transmits the electronic form of the document 300 into the displaying block 506 where it will be made available to the operator 801 who has meanwhile authenticated himself/herself against the document inspection block 500 through the security block 505.

Based on the information collected from the electronic form of the document 300, on the data provided by the real time block 507, on the data regarding the location of the document control block 500, and on the data on operator 801 provided by the security block 505, the crypto stamp generation block 504 will generate a crypto stamp 900.

The operator 801 will affix the crypto stamp 900 to the inspected document 300 either manually according to information displayed on the displaying block 504 or, alternatively, via an automated equipment (printer) connected to the crypto stamp generation block 504.

Key generation and distribution block 700 performs a cryptographically safe generation of keys used in the cryptographic operations carried out within items 100, 500, and 600.

The key storage block 702 located within the key generation and distribution block stores the keys that are used for the needs of blocks 100, 500, and 600.

The key distribution blocks 701A and 701B perform - through communication with blocks 100, 500, and 600 - the distribution of the keys and their updating.

The key generation block 703 generates the cryptographically safe keys.

The DB comparison block 600, which is shown in more detail in Figure 2, performs the comparison of individual items from two databases, i.e. from shadow DB 101 and feedback DB 503 sent into block 600 from block 500.

The comparison and evaluation proceeds within the block 601 according the appropriate comparison and evaluation criteria available from block 603. The results are entered into the alarm and warning block 602.

The statistics summary block 604 creates databases for the needs of higher statistical operations.

Example 2

One of the preferred applications of the presented invention is its use for the protection of both customs documents and operations involving those documents.

Customs documents are generated in an electronic form to be subsequently converted into their printed versions on internationally standardized forms. At the places of their creation, the appropriate customs officials affix to the documents thus created their traditional stamps and signatures. The document contains less than 200 characters which form the critical information.

The invention enables the documents to be marked by a sticker carrying a crypto mark containing, besides the electronic signature with the secret key of the customs house where the document has been created, also the entire critical information characterizing the document, which is in an encrypted form. The crypto mark may be, for example, in the form of a complex bar code printed by a laser printer on a paper base (the sticker).

One copy of the document remains at the place of its generation, while the other copy (provided with the same sticker) is transferred by the party involved in the customs transaction (e.g. the importer or exporter) to the document control point (e.g. the customs house at the border crossing).

All data regarding the document and the customs officer are entered in an encrypted form into a shadow database and sent to a point where they will undergo comparison.

At the document control point, the inspecting authority scans the crypto mark by a laser scanner connected to a computer and the information it contains will be displayed on the screen. The critical parts of the documents thus displayed shall be compared with their counterparts which are in the printed form of the same document. Having performed the remaining operations of the customs proceedings (inspection of the cargo and verification of its intactness), the customs officer concludes the proceeding by entering the appropriate command into the computer.

The data will be entered in an encrypted form into a shadow database, this procedure will be followed by the displaying of a set of numerals representing the crypto stamp which will be written by the customs officer (by hand) onto the document that is being inspected.

Every customs officer (the operator), whether at the place of the creation of the document or at the document inspection point, proves to the computer his/her authorization to perform the required customs-related operation by the use of a special token (e.g. a special form of a chip card). The identity of the customs officer will be recorded in both databases (i.e. the shadow DB located at the place of creation of the document and the feedback DB located at the document inspection point).

The electronic signature is performed by an asymmetric cryptographic method ensuring the minimization of the danger of the loss of the key (i.e. in the case when the computer at the document control point is a portable hand-held bar code scanner with a built-in micro processor, a small displaying unit and a keyboard capable of the full scale generation of the crypto stamp).

The Center carries out the complex process of the item-matching process which is based on data extracted from both databases (shadow and feedback) and generates the warning/alarm messages for the appropriate customs authorities.

The crypto mark and or crypto stamp may be used successfully also in the number of other applications, e.g. in customs warehouses, in the handling of documents associated with the flow of goods to and from warehouses, etc.

- 9 -

The invention may be utilized also in the handling of the documentation and accompanying subsequent operations within large transport systems (cargo, air, rail, and road transport).

Industrial Applicability

A viability of the industrial applicability of the invention may be documented by its possible use in the areas of customs-related operations and logistical operations within large transportation system, as outlined in the above described examples.

- 10 -

Claims

1. A system designed for the protection of documents and for preventing their unwarranted and unauthorized alteration and counterfeiting, enabling a falsification-proof confirmation of inspection-related operations, and minimizing the effect of the human factor, characterised in that consist of:
 - at least one document generation block (300) generating on the basis of document data source (200) and with the participation of an authenticated operator (800) a physical form of a document, a crypto mark (400) to be affixed onto that document, and a shadow database (101) for the storage of such documents;
 - at least one document inspection block (500) performing the following functions: scanning of the crypto mark (400) borne by the document, verification of the authenticity of that document, display of the critical parts of the document and generation of a crypto stamp (900) to be affixed by either an authenticated operator (800) and/or (801) or by an appropriate equipment to the document, and generation of a feedback document database (503);
 - at least one key generation and distribution block (700);
 - at least one document database comparison block (600);
 - at least one document source block (200).
2. A system as claimed in Claim 1, characterised in that the document generation block (101) consists of:
 - a processor (102) performing the processing of data and storing of the crypto keys;
 - a document printing block (105);
 - a crypto mark generating block (400);
 - a security block (104);
 - a real time block (107);
 - a displaying block (106); and
 - a shadow document database generation block (101).
3. A system as claimed in Claim 1, characterised in that the document inspection block (500) consists of:
 - a processor (502) performing data processing and storing of the crypto keys ;
 - a block performing the scanning of the crypto mark (501);
 - a security block (505);
 - a real time block (507);
 - a displaying block (506);
 - feedback document database creating block (503); and
 - a crypto stamp generating block (504).

- 11 -

4. A system as claimed in Claim 1, characterised in that the key generation and distribution block (700) consists of:

- a key generating block (703);
- a key storing block (702), and
- a key distribution block (701A) and/or (701B).

5. A system as claimed in Claim 1, characterised in that the database comparison block (600) consists of:

- a comparison and evaluation block (601);
- a comparison criteria block (603);
- an alarm and warning generating block (603); and
- a statistics summary block (604).

6. A method for the protection of documents and for preventing their unwarranted and unauthorized alteration and counterfeiting, enabling a falsification-proof confirmation of inspection-related operations, and minimizing the effect of the human factor, characterised in that consist of the following steps:

Cryptographic processing of selected data at the place of the generation of the document which serves as the source of data for the printout of that document, and conversion of the data into a form representing a basis for the generation of the crypto mark;

Generation of a crypto mark by the appropriate equipment after the transformation of the cryptographically pre-processed data; the crypto mark becomes unseparable component of the document that will thus become its carrier mediating its transfer to another location of use of the document;

Scanning of the crypto mark at the document inspection point and its transformation into a data format;

Verification through cryptographic methods of the integrity and authenticity of the data scanned from the crypto mark

Approval of the inspection of the document by an authenticated operator after the conclusion of the inspection and of all related operations;

Generation and displaying of a crypto stamp which links the inspected document unambiguously to the location of the document control point and to the authenticated operator;

Affixing of the crypto stamp to the inspected document for the purpose of its later processing either manually by the authenticated operator or by appropriate equipment.

7. A method as claimed in Claim 6, characterised in that the following operations carried out at the place of the document generation: accumulation of all documents that have been generated, affixing to a set of such documents of an electronic signature, and encrypting and transmitting of such documents either individually or as a shadow database into the database comparison block.

8. A method as claimed in Claim 6, characterised in that the following operations carried out at the document inspection point: accumulation of all documents that have undergone inspection, affixing to a set of such documents of their electronic signature, and encrypting and transmitting of such documents either individually or as a feedback database into the database comparison block.

- 12 -

9. A method as claimed in Claim 6, characterised in that the generated crypto mark -- provided it is represented by an independent physical object e.g. a sticker, an appendix to a document, etc. - becomes permanently attached to the document.

10. A method as claimed in Claim 6, characterised in that the generation of the crypto mark represents an integral part of the generation of the document and where it is generated by the same method as the document itself on the part of the carrier of that document designated for that purpose.

11. A method as claimed in Claim 6, characterised in that the generation of the crypto mark is performed by its merging with either the text itself and/or with its graphic part or with the document print background.

12. A method as claimed in Claims 7 to 8, characterised in that the database operations which are being carried out in the DB comparison block involve the contents of both shadow and feedback databases.

13. A method as claimed in Claim 6, characterised in that the cryptographic generation of the crypto stamp in the document inspection block located at the document inspection point is carried out on the basis of data scanned from the crypto mark and data collected at the document inspection point itself.

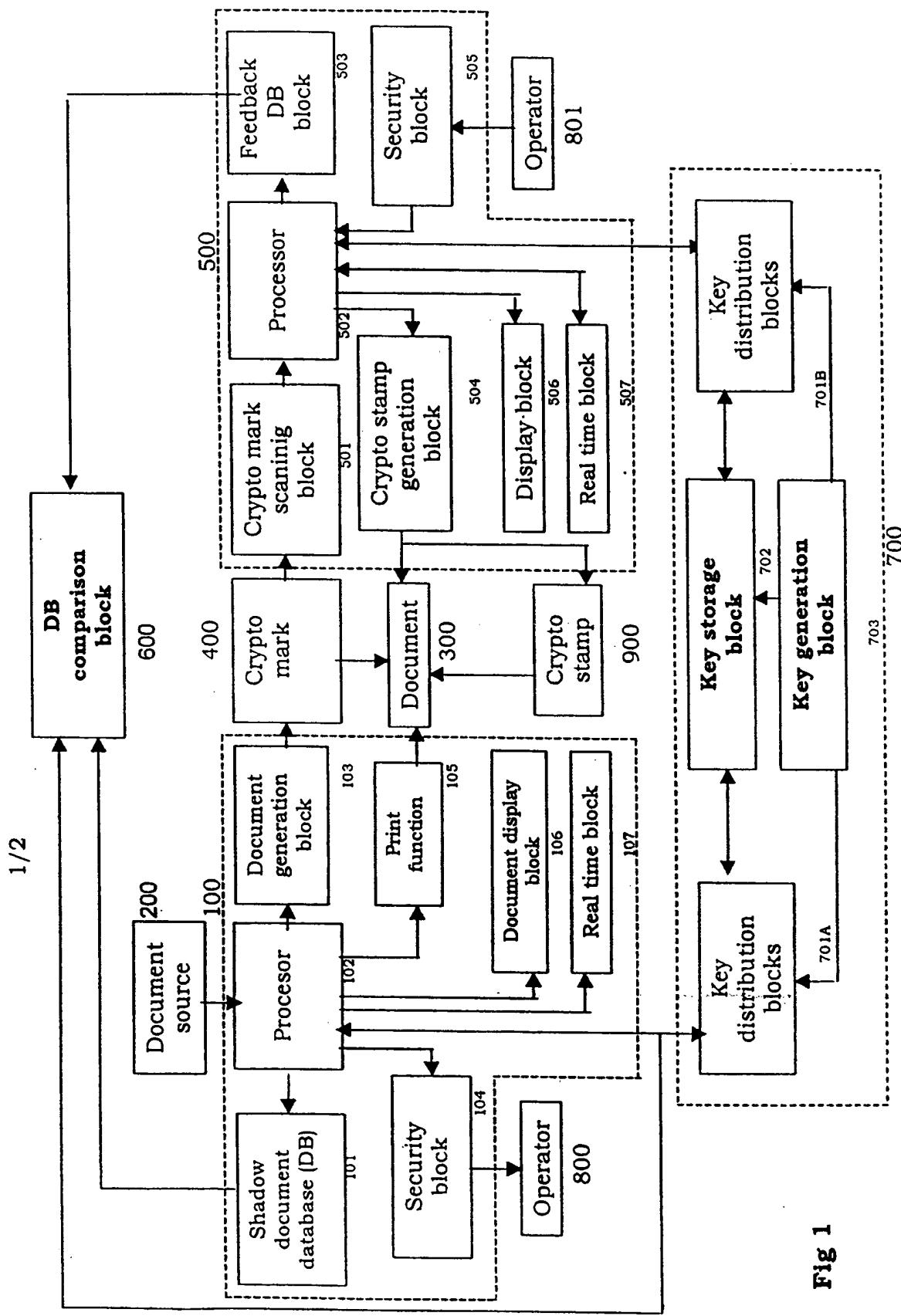
14. A method as claimed in Claims 6 and 13, characterised in that the crypto stamp becomes affixed to the document and and/or becomes connected with the document.

15. A method as specified in item 6 where the key generation block performs the generation of the encryption and decryption keys and their transmitting by a protected channel through the key distribution block to the document generation and document inspection blocks.

16. A method as claimed in Claim 6, characterised in that the operator performs through the security block the operations required to confirm his/her authorization to perform activities involving the document generation block.

17. A method as claimed in Claim 6, characterised in that the operator performs through the security block the operations required to confirm his/her authorization to perform activities involving the document inspection block.

18. A method as claimed in Claims 16 and 17, characterised in that the operator performs activities required to confirm his/her identity and authorization to perform activities involving the document generation and/or document inspection blocks.



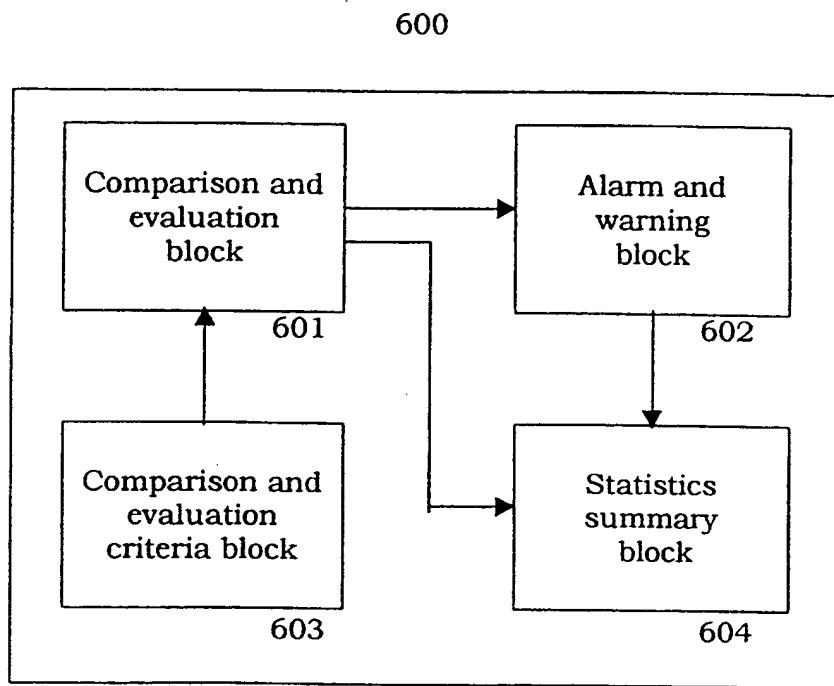


Fig. 2

INTERNATIONAL SEARCH REPORT

International Application No
PCT/SK 98/00018

A. CLASSIFICATION OF SUBJECT MATTER IPC 6 G07D7/00		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 6 G07D		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 547 837 A (XEROX CORP) 23 June 1993 see claim 1; figure 1 ---	1-18
Y	US 5 388 158 A (BERSON WILLIAM) 7 February 1995 cited in the application see claim 1; figure 1 ---	1-18
A	EP 0 782 114 A (IBM) 2 July 1997 see claim 1; figure 1 ---	1-18
A	US 5 321 749 A (VIRGA RICHARD) 14 June 1994 cited in the application see claim 1; figure 1 ---	1-18
	-/-	
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.		<input checked="" type="checkbox"/> Patent family members are listed in annex.
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
26 February 1999		08/03/1999
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl. Fax: (+31-70) 340-3016		Authorized officer Kirsten, K

INTERNATIONAL SEARCH REPORTInternational Application No
PCT/SK 98/00018

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 530 755 A (PAILLES JEAN-CLAUDE ET AL) 25 June 1996 cited in the application see claim 1; figure 1 -----	1-18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/SK 98/00018

Patent document cited in search report	Publication date	Patent family member(s)			Publication date
EP 0547837	A 23-06-1993	US 5157726 A			20-10-1992
		JP 6176036 A			24-06-1994
US 5388158	A 07-02-1995	CA 2109554 A,C			21-05-1994
		EP 0600646 A			08-06-1994
		JP 7005809 A			10-01-1995
EP 0782114	A 02-07-1997	NONE			
US 5321749	A 14-06-1994	AU 5135193 A			12-04-1994
		WO 9407326 A			31-03-1994
		US 5398283 A			14-03-1995
US 5530755	A 25-06-1996	FR 2709218 A			24-02-1995
		EP 0639919 A			22-02-1995
		JP 7177278 A			14-07-1995